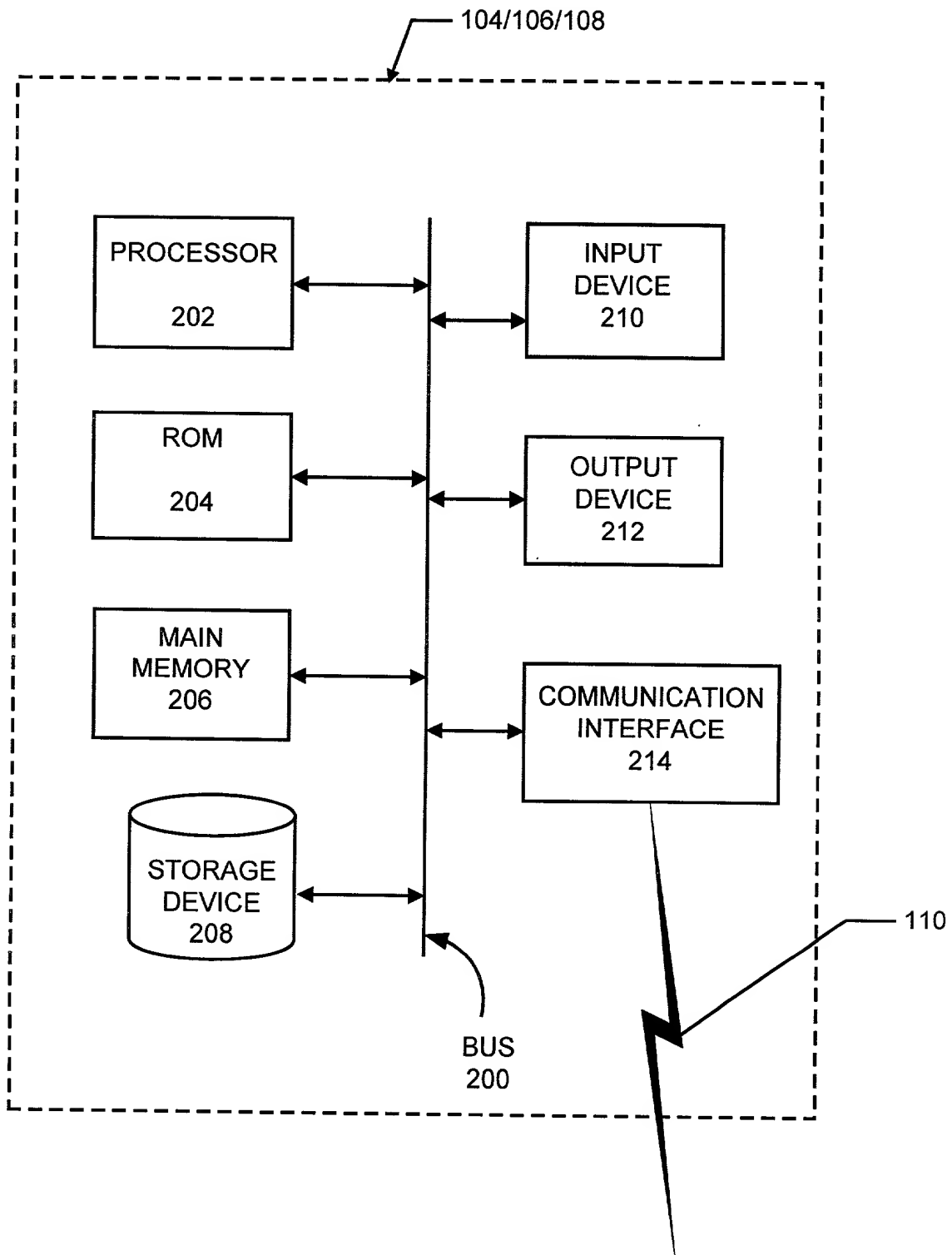
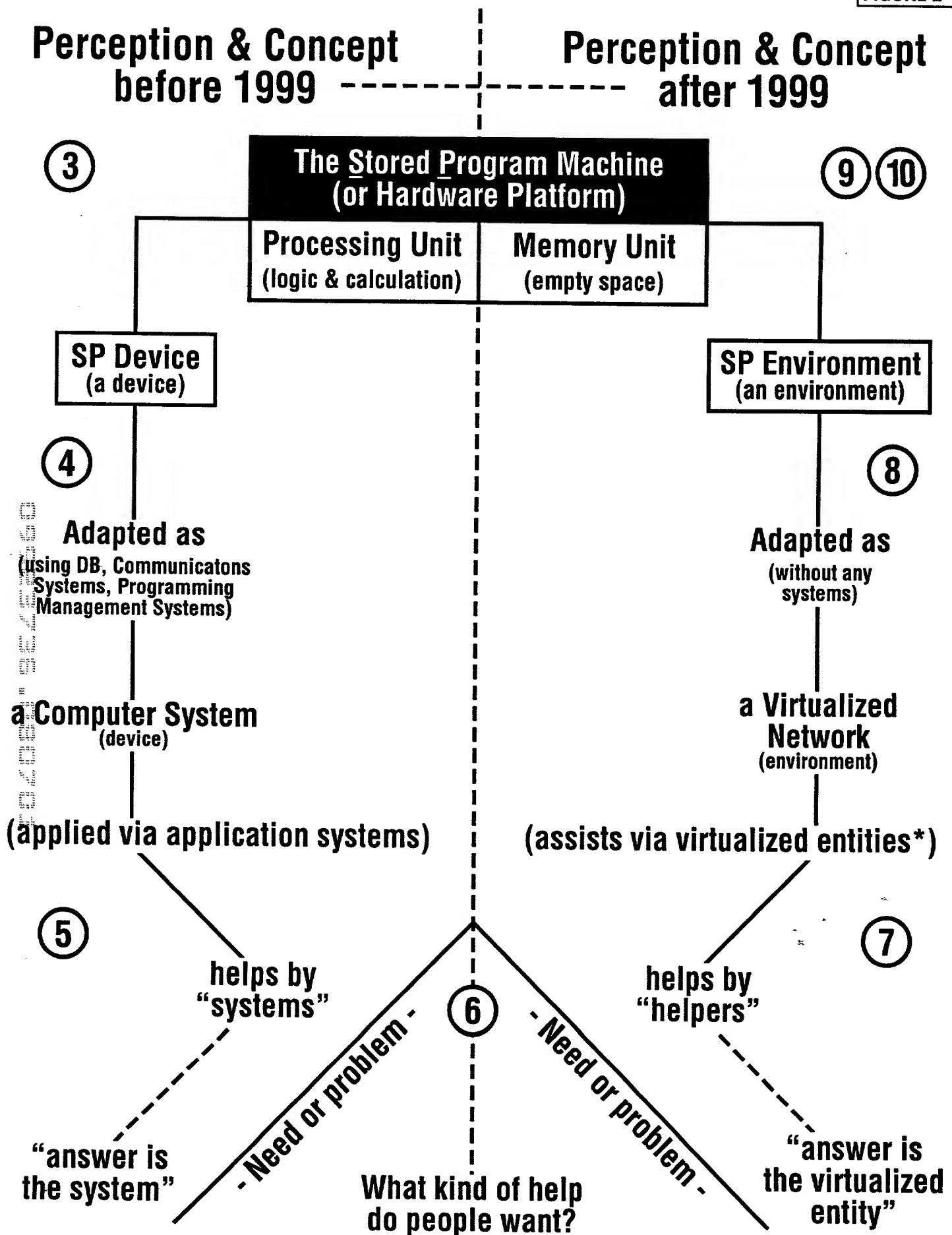


**Fig. 1**



**Fig. 2**

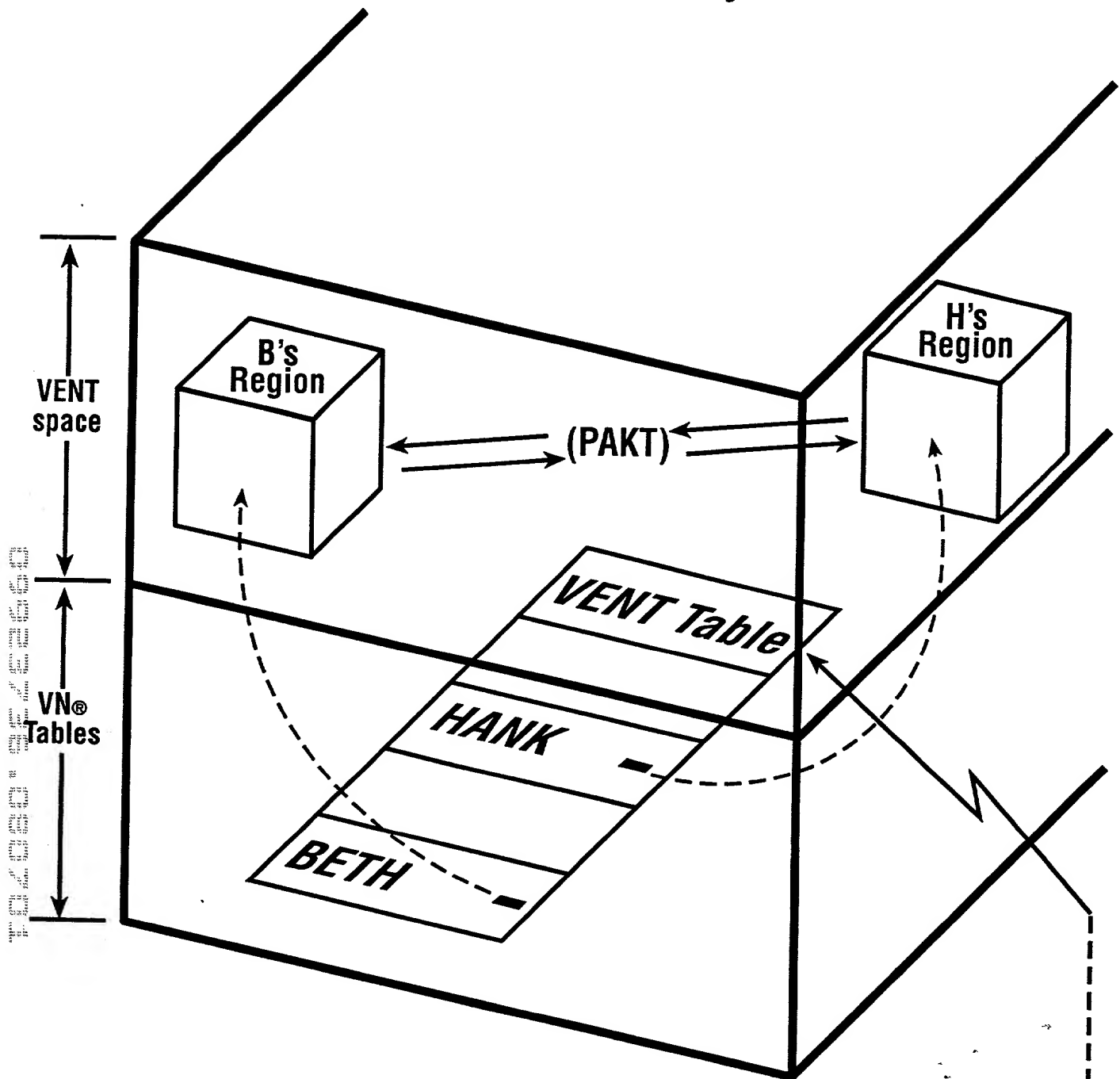
FIGURE 2-1



\*note: a virtualized entity, a virtualized self, is a "helper".

# Virtual Space = Stored Program Machine Memory

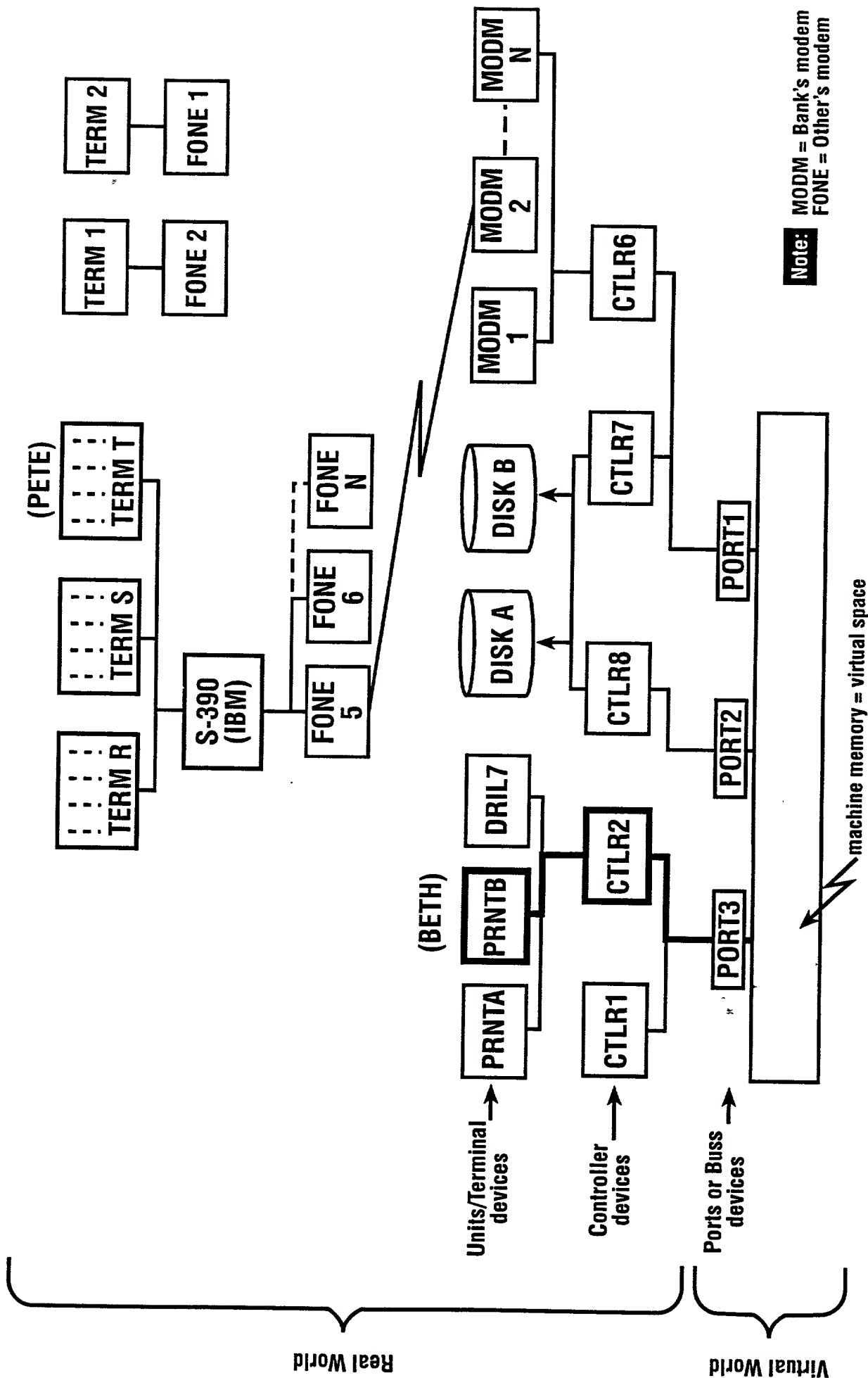
FIGURE 3-1



- Memory of the stored program machine contains tables used by the VN® adaptation, and separately, provides the space for virtualized entities.
- There is 1 VENT Table per machine containing 1 record for each VENT known to that machine. The record for each VENT name, contains a pointer to its location in virtual space and other entity information. -----
- "Speak" moves a PAKT (=data+action) from the "speaker" to the "listener" VENT.

# Hardware Configuration: Illustration for the Bank's SP Machine

FIGURE 3-4



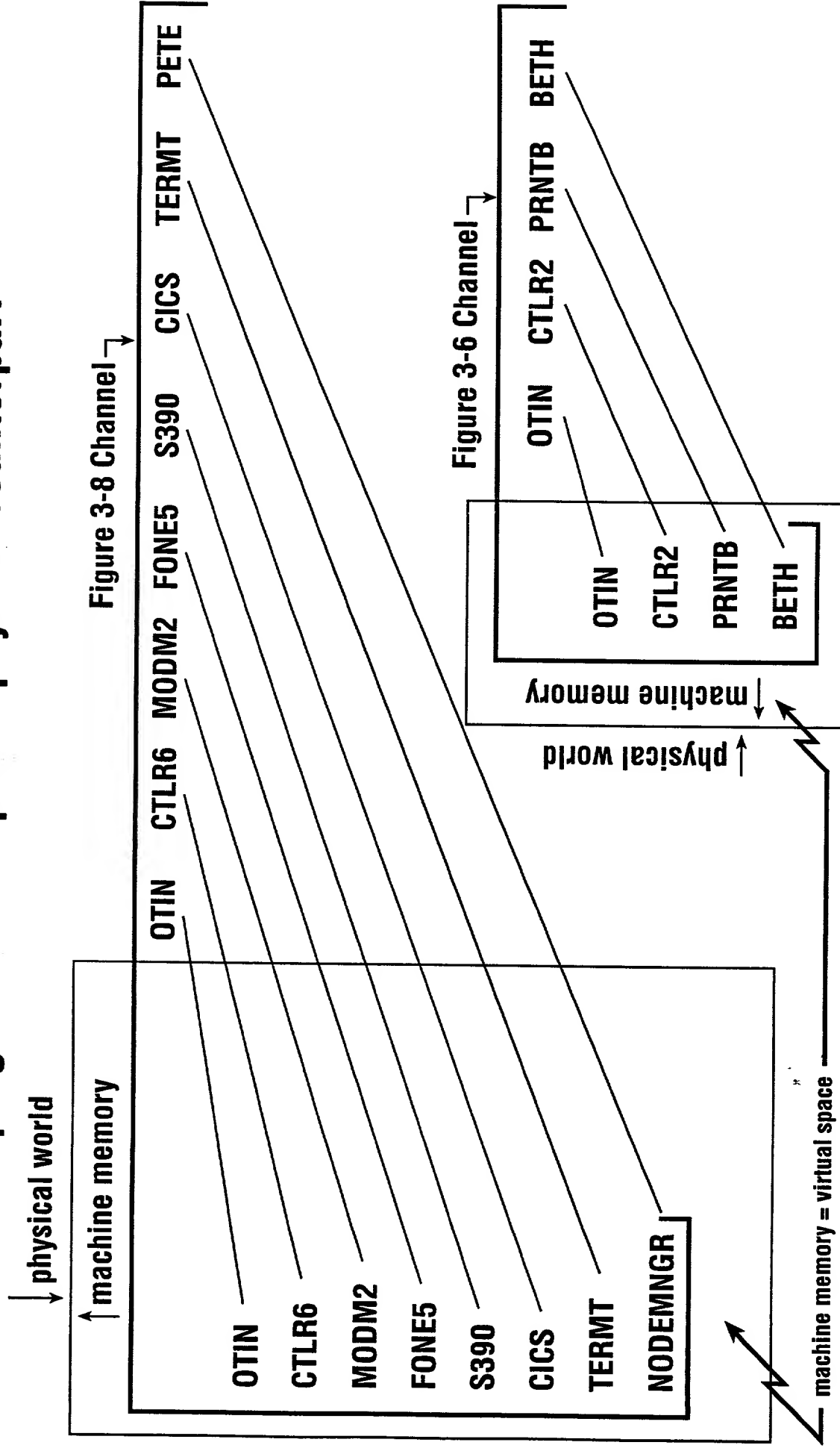
# Illustration for VENT TABL on Bank's SP machine

FIGURE 3-5

VENT NAME	PERSON /DEVICE	CONNECT /NOT CON	ON/OFF	SPLN Space	Default SPLN		Vspace Address
OTIN				MEMORY			
PORT 1		C		OTIN			
PORT 3		C		OTIN			
CTLR 1		C		PORT 3			
CTLR 2		C		PORT 3			
CTLR 6		C		PORT 1			
BETH	P				PRINT B		
MODM 1		C		CTLR 6			
S390				FONE 5, 6, N			
FONE 5				MODM			
FONE 6				MODM			
PRNT B		C		CTLR 2			
MODM 2		C		CTLR 6			
TERM 1				FONE 1			
CICS				S390			
TERM R				CICS			
TERMT				CICS			
DRIL 7		C		CTLR 2			
HANK	P						
NODEMNGR	P						
CTLR 7		C		PORT 1			
DISK B		C		CTLR 7			
PETE	P			TERMT			
FONE 1				MODM			

When a connected device is ON, it is busy/used. When a public device is on, it answered "available" to be used.

# VN<sup>®</sup> CHANNEL operation — relation of program counterpart to physical counterpart



- An entity's virtualized (program) counterpart in machine memory corresponds to its physical counterpart in physical space. The interaction between such corresponding virtual and physical counterparts is the only type of virtual-physical interaction allowed

# These are the PAKTs (the data and action) passing between the virtual and physical worlds @ OTIN entity

FIGURE 3-7

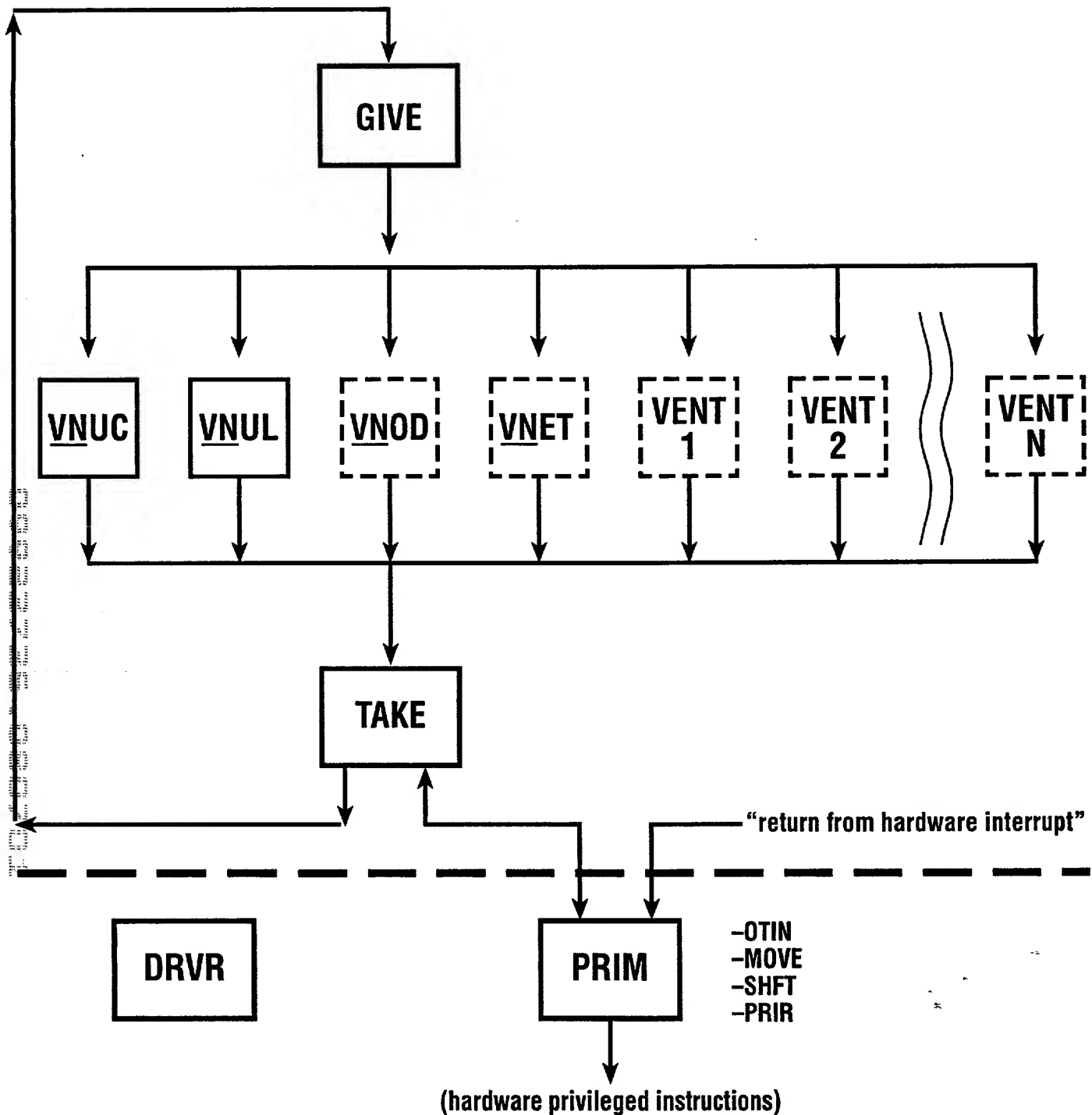
Original Speaking Program	Virtual component speaks	Direction of bit string movement	Physical component speaks
OTIN OTIN	SelectPort 3	→ ←	Port 3 selected
CTLR CTLR	Reset	→ ←	Reset OK
CTLR CTLR	Sel. Line # (Print B)	→ ←	Line # Selected
PRNT B PRNT B	skip new page	→ ←	New page OK
BETH BETH	BETH/ how??/HANK	→ ←	Line printed OK

at this point BETH may continue to speak PAKTs to her "speak-listen space", ie. PRNT B.



# Chart of Logic Modules for VN®

FIGURE 3-9



- Adaptation logic in solid lines, VENTS in broken lines.
- 4 “VN” VENTS are included with VN®; all are necessary to its operation. Excepting VNUC and VNUL, each may be further customized or enhanced by users. Actually VNUC and VNUL are not VENTS but each uses the “speak-listen” power to accomplish its function.
- The GIVE-TAKE cycle is executed at least once for every VENT “speak”.
- VNUC and VNUL are not true VENTS but are placed here, in the logic, in order to have all VENT “speak-listen” power available to them.

# Aid for (delegating, designing) Behavior

Entity Name ENGRTable Name HELLODRVR Exercises this table

Figure 3-10a

Condition or Action	Name of Condition, Action or Table	1	2	3	4	5	6	Else
TELEPHONE OR TELEPRESENCE (NOT E-MAIL)	TEST 1	Y	Y	Y	Y	N	N	
MY MANAGER	TEST 2	Y	Y	-	-	-	-	
MEMBER OF ABCD CORP.?	TEST 3	-	-	Y	N	N	Y	
AM I SIGNED-ON?	TEST 4	Y	N	Y	-	-	-	
"INTERUPT MOMENTARILY. URGENT CALL" (SPEAK)	ACTN 1	X						
CONNECT ME DIRECTLY TO MANAGER	ACTN 2	X						
RING ME ON MY DIGITAL WIRELESS (SPEAK)	ACTN 3		X					
SAY "PRESS 1 IF CORPORATE, 2 IF SALES..." (SPEAK)					X			
INSIDER ABCD CORP. (TABLE)	INSIDE MAIL						X	
OUTSIDER ON (TABLE)	OUTSIDE TALK				X			
OUTSIDE MAIL	OUTSIDE MAIL					X		
SEND TO ENGR PERSON (STEAK LAES)								X
Repeat this Table								
Return to Calling Table								

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Fig 3-10b

for this rule DRVR exercises Inside Mail Table

Figure 3-10<sub>b</sub>

## Aid for (delegating, designing) Behavior

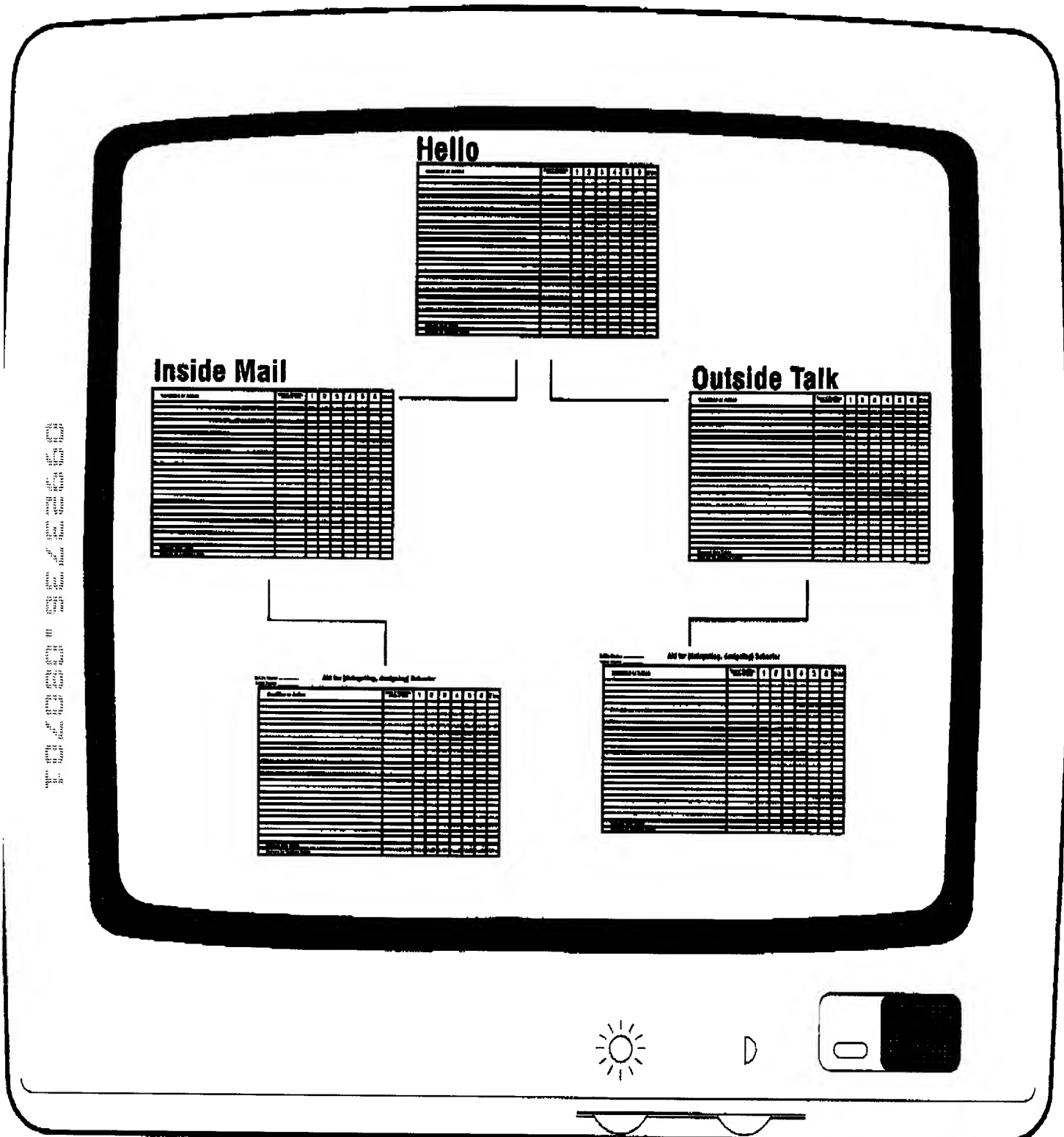
Entity Name ENGRTable Name INSIDE MAIL

Condition or Action	Name of Condition, Action or Table	1	2	3	4	5	6	Else
FROM MGR?		Y	Y	N				
ORDER FORMAT?		Y	Y					
ALL STOCK PART #'S?		Y	N					
ATTACH FABRICATION SPECS FOR EACH PART		X						
FORWARD ORDER TO MGR (SPEAK)		X						
DISPLAY ORDER FOR ENGINEERING DESIGN (SPEAK)			X					
DO ENGINEERING DESIGN AID (TABLE)			X					
SEND TO ENGR PERSON (SPEAK LARS)								X
Repeat this Table			X					
Return to Calling Table								

(2)

3-10c

# Aid for Behavior ENGR



Sample of the way a hierarchy of decision tables would be viewed.

**Note:** hatch marks mean entity does NOT exist at hatched level.

**Note:** hatch marks mean entity does NOT exist at hatched level.

# Entities most frequently virtualized (almost any entity could be virtualized)

FIGURE 4-2

Entity	Natural or Constructed	Common Name	Example	Exist at Level ?		
				conscious	subconscious	physical
Physical person	N	human	Beth Hank You	yes	yes	yes
Conceptual person	C	responsibility	Teller Manager ABC Corp. Librarian	no	yes	no
Physical device	C	implement	Fork Pump Modem	no	yes	yes
Conceptual device	C	algorithm	Tax Calculation Payroll Linear Program	no	yes	no

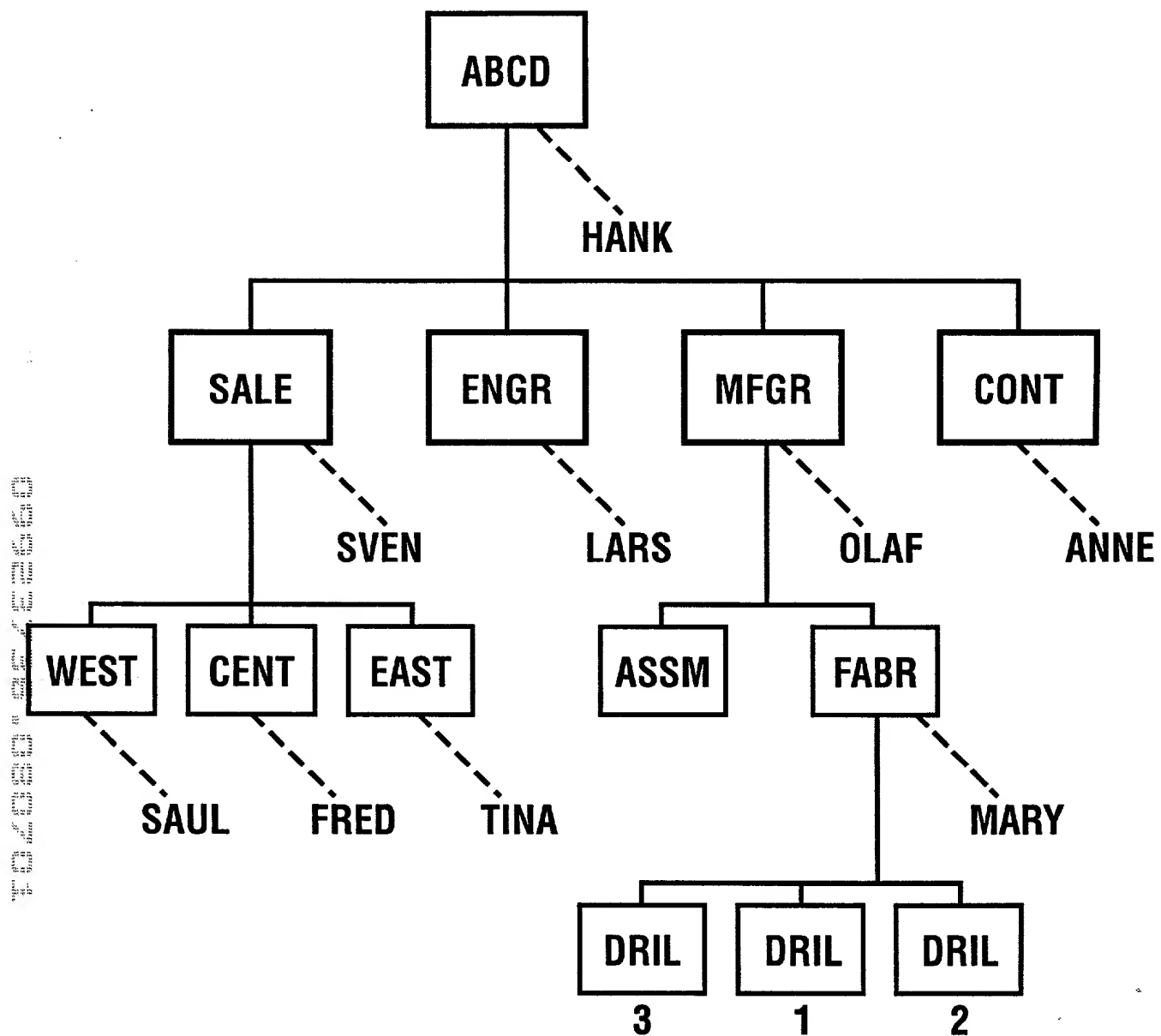
**Persons** of both types are autonomous with unsolicited program counterparts. Persons have multiple contexts, automatically recognize the context and all data/information belongs to them.

**Devices** of both types are not autonomous with solicited program counterparts. Devices have a single context and no data/information belongs to them. (Normally device program counterparts involve no procedural portions, only constants, a kind of "slide-in tray of constants.")

# Analogous Design Principles for all Constructed Entities

FIGURE 5-2

Design Principle	Responsibility = Conceptual Person	Algorithm = Conceptual Device	Implement = Physical Device
<p><b>The Constructed Entity has:</b></p> <ol style="list-style-type: none"> <li>1 a function or purpose</li> <li>2 a limited or bounded area of operation or authority</li> <li>3 the capability, power or authority to accomplish its function</li> </ol>	<p><b>Example:</b> Any state in the USA</p> <p>To govern or control the human population within its bounds</p> <p>jurisdiction limited by adjacent states and by areas and powers reserved by the Federal government.</p> <p>within above limits power to enact and enforce ordinances</p>	<p><b>Example:</b> Tax Calculation</p> <p>To assist calculation of taxable amount</p> <p>limited to American citizen, no capital gains and &lt; 9 dependents</p> <p>within above limits able to calculate taxable amount</p>	<p><b>Example:</b> Temperature Sensor (or Transducer)</p> <p>to cause a heater sub-assembly to ignite a variable rate heater when sensed temperature is less than set temperature</p> <p>within temperature limits of 20° &lt; 220°C; (input ~12V &amp; 1m amp)</p> <p>within above limits device outputs ~ 0.1m amp for each degree set temperature exceeds sensed temperature.</p>



(For reference by the instructor)